Cynthia Padilla, National instructor of botanical arts and naturalist illustration is sought out for research projects, reviews, commissioned plant portraits, workshops, and as a travel leader on sketching tours. http://www.botanicalart.50megs.com/ Join other botanical arts and natural science enthusiasts at: http://groups.yahoo.com/group/botanicalart

DAVID R. FOSTER and JOHN D. ABER. 2004. **Forests in Time: The Environmental Consequences of 1,000 years of change in New England.** (ISBN 0-300-09235-0, hbk.). Yale University Press, 302 Temple Street, P.O. Box 209040, New Haven CT 06520-9040, U.S.A. (**Orders:** www.yale.edu/yup, 203-432-0960, 203-432-0948 fax). $45.00, 447 pp., b/w figures, tables, index, bibliography, contributors, bibliographic essay, 6" × 9 1/4".

The book, *Forests in Time*, is composed of essays by multiple authors that discusses the history of a New England forest. Harvard University acquired nearly 3,000 acres to establish the Harvard Forest, a study site located in Petersham, Massachusetts, as an area to conduct ecological research. The authors stated that in order to understand current environmental issues, one must understand the history of a particular area. This book was easy to read, and provided graphs and tables to help the reader understand the ecological changes of a forest, although some of these graphs were harder to interpret than others. The authors use of detailed pictures throughout the book helps the reader develop a better perspective of how this forest changed through time. The book is divided into five main sections: background to ecological studies, regional history, modern forest landscape, understanding forest ecosystems, and lessons learned from this study.

The **first section** introduces readers to the ecological studies, conducted in the forest study site, and the reasons for Long Term Ecological Research (LTER). The text helps readers understand that landscape change occurs in response to environmental, anthropogenic, and biological factors. The landscape changes are studied at four spatial scales: site, landscape, sub-region, and region. Each of these spatial scales are affected by hydrology, humans, vegetation, and the biogeochemistry of the ecosystems. Because trees have long generation times, long-term studies must be conducted in order to understand any changes that occur.

The **second section** describes historical changes of the forest. The Harvard Forest landscape has seen a variety of changes in time: from being a tundra, boreal forest, and temperate forest at some point in its life. These changes occurred through natural (wind, pests, and fire), as well as anthropogenic (Native American) disturbances.

The **third section** explains how historical land use can affect species richness (number of species present) and species composition both directly and indirectly. The influence of several historical and modern factors were tested at the Montague Plain and Prospect Hill including prior land uses that can alter the soil organic matter and nutrient storage availability of the soil. The authors used several graphs to support the change in abundance of specific plants at each site and the effects of land-use history. These graphs showed a strong correlation between the carbon to nitrogen ratio and nitrification in forest soils with different land-use histories. Studies on the long term influences between the forest and atmosphere were performed. The forest removes more ozone than the atmosphere, and appeared to have a more considerable influence than urban areas or ecosystems composed of smaller vegetation. All of these changes have worked in creating the present forest ecosystem.

The **fourth section** discusses research conducted to understand forest ecosystems through long-term studies. Scientists conducted several research experiments designed to simulate hurricane affects on forest ecosystems, the process of nitrogen saturation, soil warming, and litter and root influences on soil This research allows for long term study of these various effects. There were several controls

used throughout the experiments: nutrient fluctuation, "ecophysiological performance, population dynamics, vegetation structure, and ecosystem productivity."

The **fifth section** and conclusion reviewed lessons learned from research done in the forest. This research is leading to a better understanding of forest systems and ideas to improve land conservation. The land and forest are constantly changing, and people that manage this land need to "find ways to incorporate landscape change into long term planning". This constant change proves that in natural systems, such as the forest, long term studies must be conducted because they help to develop better conservation objectives.

This book was very interesting, and will help readers understand the importance of long term ecological research. This book was written in a way that it is easy for those new to science and ecology to understand. It is recommended to persons interested in New England terrestrial ecology, disturbance effects on forest structure, and long-term research locations.—*Keri McNew, Botanical Research Institute of Texas, 509 Pecan Street, Fort Worth, TX 76102-4060, U.S.A.*

Douglas E. Soltis, Pamela S. Soltis, Peter K. Endress, and Mark W. Chase. 2005. **Phylogeny and Evolution of Angiosperms.** (ISBN 0-87893-817-6, pbk.) Sinauer Associates, 23 Plumtree Rd, Sunderland, MA 01375-0407, U.S.A., (**Orders:** 413-549-1118 fax; orders@sinauer.com; www.sinauer.com). $59.95, 370 pp., numerous b&w figures, 8 1/2" × 11".

Rare is the book that has you cursing its basic tenets and thesis, yet draws you to explore it often. This is such a book. In many ways, it is already a classic. So you might as well buy a copy and place it within easy reach next to Cronquist's *Integrated System*.

In essence, *Phylogeny and Evolution of Angiosperms* is the magnum opus of the Angiosperm Phylogeny Group (APG). Although the authors' style is somewhat detached, as if to explain the actions of the APG as a third party, they are actually movers and shakers of the APG. They know its workings and conclusions from the ground up. Although leaders in the field of angiosperm molecular systematics, they are all classically trained, mostly in the 1970s and are well versed in plant morphology. This fact is evident in the text, and that is the reason for my oxymoronic relationship with this book.

Organization of the chapters is such that they fall into three natural sections. Chapters 1 and 2 provide general background and concepts. Chapters 3 to 9 are detailed accounts of molecular support and morphological characteristics of the major segments of the APG classification (sequentially, the basal angiosperms, monocots, basal eudicots, peripheral core eudicots, caryophyllids, rosids, and asterids. Chapters 10–13 examine the application of the APG classification to problems and concepts of evolutionary diversification across the angiosperms.

Why I love this book:

- It is a readable and elaborated explanation of the current APG classification. Besides incorporating new publications to update APG II, the authors present new analyses to answer questions raised during the composition of the book itself.
- Not only do the authors put the APG cladogram into words, but they also characterize the morphology of the taxa (especially orders) recognized in the APG classification. In particular, they report any synapomorphies that corroborate the molecularly defined clades. This is especially helpful in cases with morphologically divergent taxa that are united on molecular grounds. The authors are to be commended for a writing style that keeps this material from becoming tedious.